Answer on Question #49652 – Chemistry– Other

Question:

Isotopes of chlorine different reactivates.

Answer:

Chlorine (Cl) has **24** isotopes with mass numbers ranging from ^{28}Cl to ^{51}Cl. There are two principal stable isotopes, **^{35}Cl** (75.78%) and **^{37}Cl** (24.22%), found in the relative proportions of 37.89**:**12.11, respectively, giving chlorine a standard atomic mass of **35.453**. The longest-lived radioactive isotope is ^{36}Cl which has a half-life of 301,000 years. All other isotopes have half-lives under 1 hour, many less than one second. The shortest-lived are ^{29}Cl and ^{30}Cl, with half-lives less than 20 and 30 nanoseconds.

^{36}Cl is a hydrophilic nonreactive isotope, but it half-life makes it suitable for geologic dating in the range of 60,000 to 1 million years.

^{35}Cl has the highest electron affinity and the third highest electronegativity of all the reactive elements. That's why chlorine is so reactive substance and for this reason, chlorine is a strong oxidizing agent. Free chlorine is rare on Earth, and is usually a result of direct or indirect oxidation by oxygen.